

LESSON

6-1

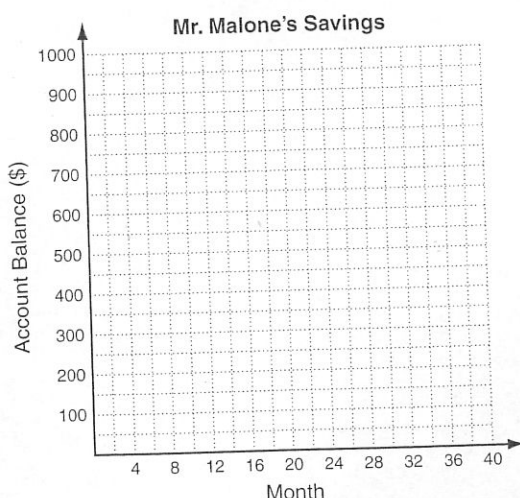
Problem Solving

Solving Systems by Graphing

Write the correct answer.

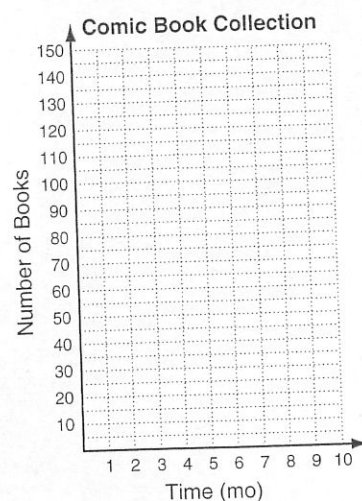
1. Mr. Malone is putting money in two savings accounts. Account A started with \$200 and Account B started with \$300. Mr. Malone deposits \$15 in Account A and \$10 in Account B each month. In how many months will the accounts have the same balance? What will that balance be?

20 months, \$500.-



2. Tom currently has 5 comic books in his collection and has subscribed to receive 5 new comic books each month. His uncle has 145 comic books, but sends 5 to each of his 3 nieces each month. In how many months will they have the same number of comic books? How many books will that be?

7 months, 40 books



The graph below compares the heights of two trees. Use the graph to answer questions 3–5. Select the best answer.

3. How many years after planting will the trees be the same height?

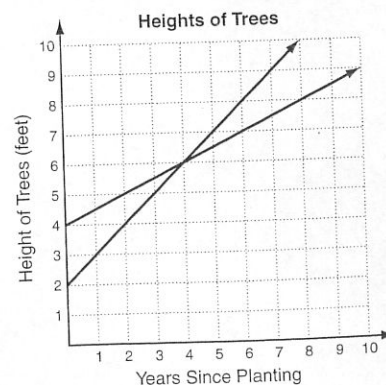
A 1 years ☒ C 4 years
B 2 years D 6 years

4. Which system of equations is represented by the graph?

F $\begin{cases} y = x + 2 \\ y = 0.5x + 2 \end{cases}$ H $\begin{cases} y = 2x + 4 \\ y = x + 4 \end{cases}$
☒ G $\begin{cases} y = x + 2 \\ y = 0.5x + 4 \end{cases}$ J $\begin{cases} y = 4x - 2 \\ y = 2x + 2 \end{cases}$

5. How fast does the tree that started at 2 feet tall grow?

A 0.5 ft/yr C 1.5 ft/yr
☒ B 1 ft/yr D 2 ft/yr



6. How fast does the tree that started at 4 feet tall grow?

☒ F 0.5 ft/yr H 1.5 ft/yr
G 1 ft/yr J 2 ft/yr

LESSON

6-2

Problem Solving

Solving Systems by Substitution

Write the correct answer.

1. Maribel has \$1.25 in her pocket. The money is in quarters and dimes. There are a total of 8 coins. How many quarters and dimes does Maribel have in her pocket?
- 3Q
5D
2. Fabulously Fit offers memberships for \$35 per month plus a \$50 enrollment fee. The Fitness Studio offers memberships for \$40 per month plus a \$35 enrollment fee. In how many months will the fitness clubs cost the same? What will the cost be?
- 3 months
\$155

3. Vong grilled 21 burgers at a block party. He grilled the same number of pounds of turkey burgers as hamburgers. Each turkey burger weighed $\frac{1}{4}$ pound and each hamburger weighed $\frac{1}{3}$ pound. How many of each did Vong grill?
- 12 turkey
9 beef
4. Kate bought 3 used CDs and 1 used DVD at the bookstore. Her friend Joel bought 2 used CDs and 2 used DVDs at the same store. If Kate spent \$20 and Joel spent \$22, determine the cost of a used CD and a used DVD.
- CD \$4.50
DVD \$6.50

Use the chart below to answer questions 5–8. Select the best answer.

The chart compares the quotes that the Masons received from four different flooring contractors to tear out and replace a floor.

5. Which expression shows the total cost if the work is done by Dad's Floors?

A $8 + 150x$ C $150(8x)$
☒ B $150 + 8x$ D $158x$

6. How many square feet would the Masons need to have installed to make the total cost of V.I.P. Inc. the same as the total cost of Floorshop?

F 10 sq ft ☒ H 100 sq ft
 G 200 sq ft J 350 sq ft

7. When the total costs of V.I.P. Inc. and Floorshop are the same, what is the total cost?

☒ A \$1125.00 C \$1950.00
 B \$1900.00 D \$3187.50

Contractor	Cost to tear out old floor	Cost of new floor per square foot
Smith & Son	\$250	\$8.00
V.I.P. Inc.	\$350	\$7.75
Dad's Floors	\$150	\$8.00
Floorshop	\$300	\$8.25

8. How many square feet would the Masons need to have installed to make the total cost of Smith & Son the same as the total cost of V.I.P. Inc.?

F 80 sq ft ☒ H 400 sq ft
 G 100 sq ft J 1000 sq ft

LESSON

6-3

Problem Solving**Solving Systems by Elimination**

Write the correct answer.

1. Mr. Nguyen bought a package of 3 chicken legs and a package of 7 chicken wings. Ms. Dawes bought a package of 3 chicken legs and a package of 6 chicken wings. Mr. Nguyen bought 45 ounces of chicken. Ms. Dawes bought 42 ounces of chicken. How much did each chicken leg and each chicken wing weigh?

leg 8oz.
wing 3oz.

3. The Lees spent \$31 on movie tickets for 2 adults and 3 children. The Macias spent \$26 on movie tickets for 2 adults and 2 children. What are the prices for adult and child movie tickets?

adult \$8
child \$5

2. Jayce bought 2 bath towels and returned 3 hand towels. His sister Jayna bought 3 bath towels and 3 hand towels. Jayce's bill was \$5. Jayna's bill was \$45. What are the prices of a bath towel and a hand towel?

bath \$10
hand \$5

4. Last month Stephanie spent \$57 on 4 allergy shots and 1 office visit. This month she spent \$9 after 1 office visit and a refund for 2 allergy shots from her insurance company. How much does an office visit cost? an allergy shot?

office visit
allergy shot \$8

Use the chart below to answer questions 5–6. Select the best answer.
The chart shows the price per pound for dried fruit.

Dried Fruit Price List			
Pineapple	Apple	Mango	Papaya
\$7.50/lb	\$7.00/lb	\$8.00/lb	\$7.25/lb

5. A customer bought 5 pounds of mango and papaya for \$37.75. How many pounds of each fruit did the customer buy?

☒ A 2 lbs mango and 3 lbs papaya
☐ B 3 lbs mango and 2 lbs papaya
☐ C 1 lb mango and 4 lbs papaya
☐ D 4 lbs mango and 1 lb papaya

6. A store employee made two gift baskets of dried fruit, each costing \$100. The first basket had 12 pounds of fruit x and 2 pounds of fruit y. The second basket had 4 pounds of fruit x and 9 pounds of fruit y. Which two fruits did the employee use in the baskets?

☐ F pineapple and apple
☒ G apple and mango
☐ H mango and papaya
☐ J papaya and pineapple

LESSON

6-4

Problem Solving

Solving Special Systems

Write the correct answer.

1. Tyra and Charmian are training for a bike race. Tyra has logged 256 miles so far and rides 48 miles per week. Charmian has logged 125 miles so far and rides 48 miles per week. If these rates continue, will Tyra's distance ever equal Charmian's distance? Explain.
no - parallel
2. Metroplexpress and Local Express are courier companies. Metroplexpress charges \$15 to pick up a package and \$0.50 per mile. Local Express charges \$10 to pick up a package and \$0.55 per mile. Classify this system and find its solution, if any.
100mi, \$65.-
3. The Singhs start savings accounts for their twin boys. The accounts earn 5% annual interest. The initial deposit in each account is \$200. Classify this system and find its solution, if any.
many solutions
4. Frank earns \$8 per hour. Madison earns \$7.50 per hour. Frank started working after Madison had already earned \$300. If these rates continue, will Frank's earnings ever equal Madison's earnings? If so, when?
yes 600hrs.

Select the best answer.

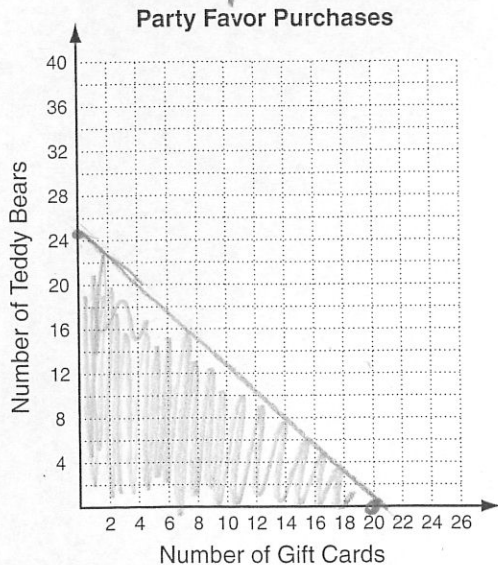
5. A studio apartment at The Oaks costs \$400 per month plus a \$350 deposit. A studio apartment at Crossroads costs \$400 per month plus a \$300 deposit. How many solutions does this system have?
☒ A no solutions
☐ B 1 solution
☐ C 2 solutions
☐ D an infinite number of solutions
6. Jane and Gary are both landscape designers. Jane charges \$75 for a consultation plus \$25 per hour. Gary charges \$50 for a consultation plus \$30 per hour. For how many hours will Jane's charges equal Gary's charges?
☐ F never
☐ G after 2 hours
☒ H after 5 hours
☐ J always
7. A tank filled with 75 liters of water loses 0.5 liter of water per hour. A tank filled with 50 liters of water loses 0.1 liter of water per hour. How would this system be classified?
☐ A inconsistent
☐ B dependent
☒ C consistent and independent
☐ D consistent and dependent
8. Simon is 3 years older than Renata. Five years ago, Renata was half as old as Simon is now. How old are Simon and Renata now?
☐ F Simon is 13 and Renata is 10.
☐ G Simon is 15 and Renata is 10.
☐ H Simon is 16 and Renata is 8.
☒ J Simon is 16 and Renata is 13.

LESSON
6-5
Problem Solving
Solving Linear Inequalities

Write the correct answer.

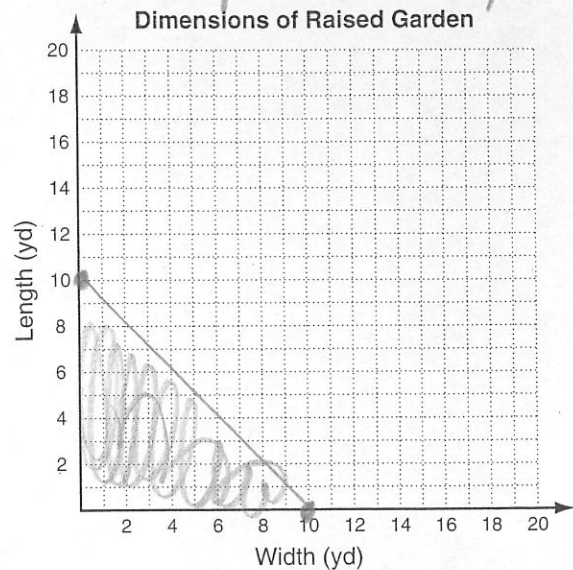
1. Shania would like to give \$5 gift cards and \$4 teddy bears as party favors. Sixteen people have been invited to the party. Shania has \$100 to spend on party favors. Write and graph an inequality to find the number of gift cards x and teddy bears y Shania could purchase.

$$5x + 4y \leq 100$$



2. Hank has 20 yards of lumber that he can use to build a raised garden. Write and graph a linear inequality that describes the possible lengths and widths of the garden. If Hank wants the dimensions to be whole numbers only, what dimensions would produce the largest area?

$$2x + 2y \leq 20 \quad 5\text{yd by } 5\text{yd}$$



Select the best answer.

3. The royalties for the high school play are \$250. Tickets to the play cost \$5 for students and \$8 for nonstudents. What linear inequality describes the number of student and nonstudent tickets that need to be sold so that the drama class can pay the royalties?

A $5x + 8y \geq 250$ **C** $5xy + 8 < 250$
B $5x + 8y > 250$ **D** $5xy + 8 \geq 250$

5. A baker is making chocolate and lemon pound cakes. He can make at most 12 cakes at one time. Which inequality describes the situation?

A $x + y > 12$ **C** $x + y \leq 12$
B $x + y \geq 12$ **D** $x + y < 12$

4. The inequality $x + y \leq 8$ describes the amounts of two juices Annette combines to make a smoothie. Which is a solution to the inequality?

F (3, 6) **H** (7, 2)
G (6, 1) **J** (0, 10)

6. Erasmus is the master gardener for a university. He wants to plant a mixture of purple and yellow pansies at the west entrance to the campus. From past experience, Erasmus knows that fewer than 350 pansies will fit in the planting area. Which inequality describes the situation?

F $x + y \geq 350$ **H** $x + y \leq 350$
G $x + y > 350$ **J** $x + y < 350$